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September 16, 2010

VIA ELECTRONIC DELIVERY

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Room TWA325
Washington, DC 20554

Re: Notice of *Ex Parte* Presentations
ET Docket Nos. 04-186, 02-380

Dear Ms. Dortch:

Today, Joseph M. Sandri, Jr., Senior Vice President of Government and Regulatory Affairs for FiberTower Corporation ("FiberTower"); Fred B. Campbell, Jr., President & CEO of the Wireless Communications Association International; Richard Engelman, Director, Spectrum Resources-Government Affairs for Sprint Nextel Corporation ("Sprint Nextel"); Caressa D. Bennet of Bennet & Bennet, PLLC, General Counsel for the Rural Telecommunications Group, Inc. ("RTG"), and Michele C. Farquhar of Hogan Lovells US LLP, Counsel to Sprint Nextel and Special Counsel to FiberTower and RTG, spoke by teleconference with Rick Kaplan, Chief Counsel and Senior Legal Advisor to Chairman Genachowski. Ms. Farquhar also spoke by teleconference with John Giusti, Chief of Staff and Legal Advisor to Commissioner Michael Copps.

During the meetings, the representatives discussed their proposal to permit limited fixed licensed use of a limited portion of the vacant TV Bands White Spaces ("White Spaces") channels in rural and tribal areas to provide more cost-effective backhaul options, as described in the attached one-page background paper. Otherwise, carriers serving many rural and tribal areas will continue to be unable afford the backhaul necessary to light broadband networks. The parties noted their flexibility regarding the fixed licensed use of particular channels within the TV Bands, particularly rural vacant UHF Channels 14-20, and the possibility of limiting fixed licensed use to a limited percentage of vacant available channels in rural and tribal areas. We also noted that the instant proposal can largely accommodate any subsequent "repacking" in the TV White Spaces because dozens of vacant channels exist in the rural and tribal areas at issue in our proposal, and we propose utilizing at most a limited amount of the vacant channels in those areas. The parties discussed the attached letter, which provides more detailed information regarding existing Broadcast Auxiliary Service ("BAS") equipment available for UHF Channels 14-20 that can be readily used for wireless backhaul and reasons why the parties' proposal is consistent with any future TV Bands channel modification or repacking efforts.

The representatives also discussed the number and location of vacant TV White Spaces channels across the country that would be vacant even if broadcast stations are "repacked" from the higher to the lower TV Bands. The first attached map, which has been filed previously in this proceeding, clearly shows a large number of rural areas that have 33 or more TV White Spaces channels available. The Commission's National Broadband Plan recommended that the Commission reallocate 120 MHz of TV spectrum to mobile broadband services,[1] and there is a recognition that to accommodate that reallocation it may be necessary to repack TV stations from Channels 31-50 into lower channels. The second attached map, prepared from the FCC's TV stations database on a county-by-county basis, shows that there are a significant number of rural counties where there are no stations in TV Channels 31-51 (and thus these counties would not be impacted by repacking) and where there are 15 or more available TV White Spaces channels below Channel 31.[2] The third map shows the Equivalent Grade B Contours for broadcast stations and construction permits in TV Channels 14-20 and 31-50. This map also displays a significant number of areas where repacking will not be needed and where adequate spectrum will continue to be available for fixed licensed point-to-point links on Channels 14-20. Combined, these maps confirm that – regardless of whether repacking occurs – fixed licensed point-to-point links can be authorized without impacting the goal of reallocating TV spectrum in many rural and tribal areas, especially in Maine, Alaska, Washington, Oregon, Utah, Montana, North Dakota, South Dakota, Wyoming, Nebraska, Nevada, Texas, and Kansas.

In particular, the parties stressed that adopting the proposal now is especially critical and time-sensitive for rural carriers because major build-out deadlines are rapidly approaching in the Broadband Radio Service/Educational Broadband Service ("BRS/EBS"), 700 MHz, and other bands, as shown in the attached summary. Carriers are deciding whether and where to build out in rural areas across the country, and time is of the essence. By adopting the proposal now, the Commission can ensure that the TV White Spaces spectrum can be deployed for cost-effective backhaul to support and facilitate viable rural build-out in the BRS/EBS, 700 MHz, and other wireless services; these efficiencies will free up resources for increased rural broadband deployment, including in more remote areas in many cases. Indeed, the existing off-the-shelf BAS equipment is the only cost-effective wireless backhaul solution in many rural areas.

The parties also encouraged the Commission to begin authorizing fixed licensed use of a small portion of the White Spaces immediately in rural or tribal areas on a very limited, case-by-case defined or trial basis, including through waivers of the Commission's rules. For example, it could authorize the Wireless Telecommunications Bureau ("Bureau") to grant time-limited waivers for fixed licensed use of a small portion of the TV White Spaces (or a limited percentage of the available channels in a rural market or tribal area) subject to specific waiver criteria established by the Commission. Waiver applicants could be required to make certain showings before obtaining fixed-use licenses, such as providing the proposed license area, the number and channel placement of incumbents in the area, the number and placement of vacant channels in the area, and information

[1] *See, e.g.*, "Connecting America: The National Broadband Plan," Federal Communications Commission, Recommendation 5.8.5, 88-89 (March 2010) ("NBP").

[2] In this map, if any county had even one digital TV station operating in the range of TV Channels 31-51, that county is identified as having zero available TV White Spaces channels, representing a worst-case scenario.

related to the population and the need for low-cost backhaul in the area. The proposed use could be clearly designated only for backhaul.

As detailed in the attached materials, there is ample precedent for the Commission to consider waiver requests for the use of vacant TV White Spaces channels on a case-by-case basis. Such time-limited waivers could also be limited to rural markets or tribal areas where there are no broadcast stations that would be subject to potential repacking. To ensure that new broadband services are deployed in rural and tribal areas as expeditiously as possible, the Commission should also direct the Bureau to act on such waiver applications within 60 days after an application is filed. Furthermore, the parties urged the Commission to commit to making available a number of TV White Spaces channels for fixed licensed wireless backhaul use immediately upon conclusion of any internal analysis regarding the potential impact of repacking the TV Bands.

To the extent the Commission determines that additional notice and comment would be needed before rules can be promulgated to implement the proposal, the parties urged that a Further Notice of Proposed Rulemaking be included as part of the item to be considered at the upcoming open meeting. Such a Further Notice should seek comment on the parties' proposal to amend the Commission's Part 101 or Part 74 rules to authorize limited use of the White Spaces in rural and tribal areas for fixed licensed, point-to-point wireless backhaul operations. As previously described, the proposal would permit use of up to six vacant TV channels, within the range of UHF TV Channels 14-35 and 39-51, that are second or greater adjacent to a TV broadcast station in rural counties, or a prescribed subset of these channels. In addition to seeking comment on the proposal in general, the Commission could also seek comment on whether a limit should be placed on the total *percentage* of vacant channels that could be used for backhaul operations in rural areas, in addition to the proposed limit of six channels per market, and whether to specifically condition use of these channels to wireless backhaul purposes only.

By taking advantage of fallow spectrum, adoption of the proposal could reduce backhaul costs by as much as 80-90% in rural areas while fully protecting incumbents and ensuring that ample spectrum remains for unlicensed use.[3] This cost advantage could make the difference in whether a rural or tribal area will have adequate backhaul to support consumer and public safety broadband services. Seeking comment on the proposal would be consistent with the National Broadband Plan's conclusion that the "FCC should take further actions to enhance the flexibility and speed with which companies can obtain access to spectrum for use as wireless backhaul, which is critical to the deployment of wireless broadband and other wireless services."[4] Moreover, adopting the proposal will help address the "notable lack of competition for special access in rural areas" recognized by the U.S. Government Accountability Office in a July 2010 Report to Congress,[5] and

[3] *See, e.g.*, *Ex Parte* filing by FiberTower, RTG, and Sprint Nextel, ET Docket Nos. 04-186 and 02-380, "Licensed, Fixed Use of the TV White Spaces" Attachment at Slide 15 (filed Sept. 3, 2010); Reply Comments of FiberTower, RTG, COMPTEL, and Sprint Nextel – NBP Public Notice #6, GN Docket Nos. 09-47, 09-51, and 09-137, at 3-4 (filed Nov. 13, 2009).

[4] *See* NBP at 93.

[5] *Enhanced Data Collection Could Help FCC Better Monitor Competition in the Wireless Industry*, Government Accountability Office Report to Congressional Requesters, 32 (July 2010).

the "prohibitively expensive" backhaul transport costs highlighted by the Commission in the 2009 Rural Broadband Report.[6]

Finally, the parties cited the many benefits of licensed use of the White Spaces, including the exceptional propagation features of the band and the availability of low cost, lightweight antennas, which are ideal for the provision of significantly lower-cost backhaul over much longer distances in rural and tribal areas. For years, the Commission has moved fixed licensed users from the lower bands and relegated fixed licensees, particularly point-to-point backhaul providers, to the microwave and other higher bands. This has left a gap for affordable, long-haul backhaul in rural areas, which would benefit from use of the TV White Spaces channels lying fallow in these areas.

Pursuant to Section 1.1206(b)(2) of the Commission's rules, I am filing this notice electronically in the above-referenced dockets. Please contact me directly with any questions.

Respectfully submitted,

/s/ Michele C. Farquhar

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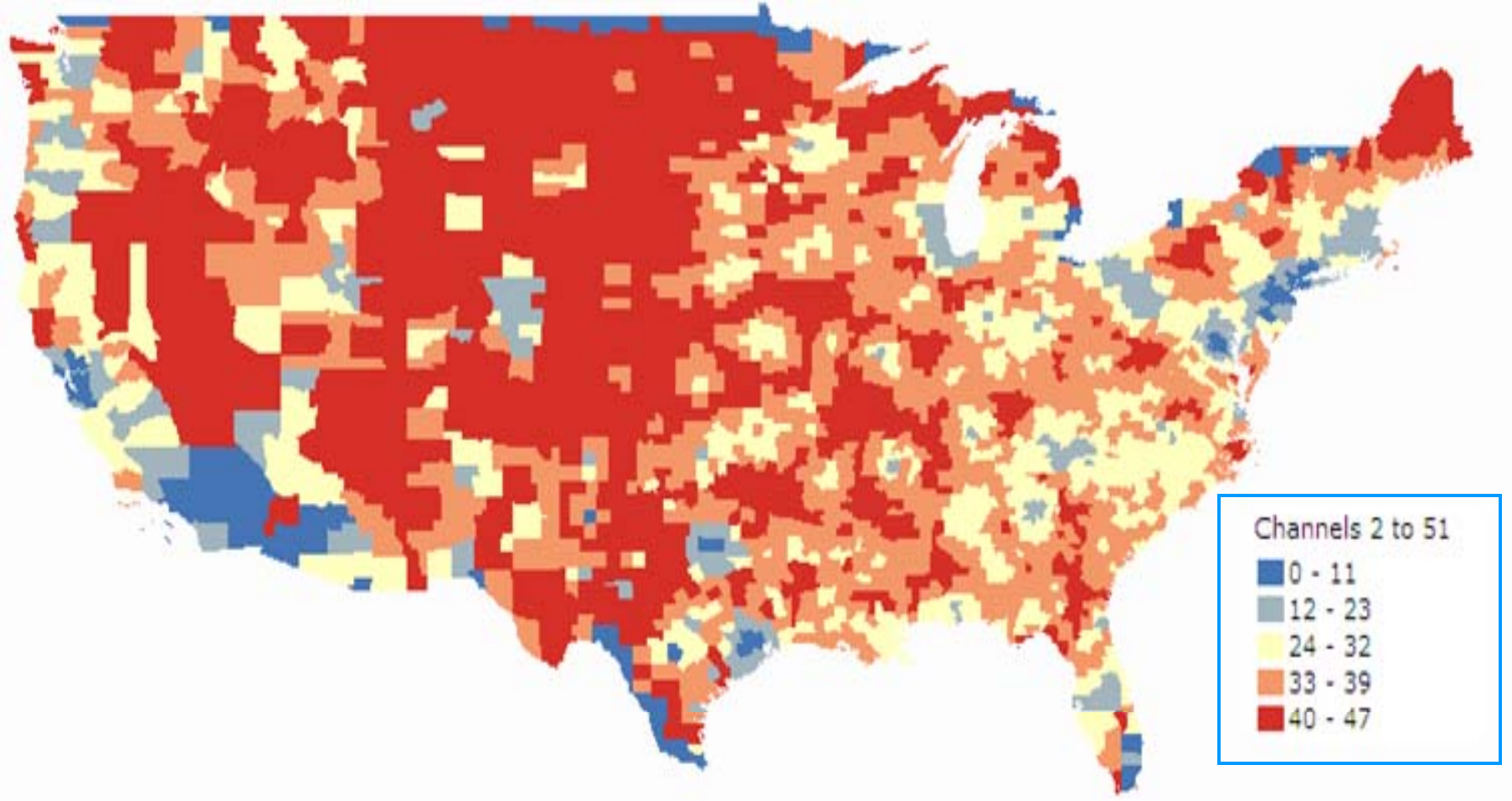
[6] *Bringing Broadband to Rural America: Report on a Rural Broadband Strategy*, Federal Communications Commission, at ¶ 114 (May 22, 2009) (explaining correctly that "backhaul transportation costs in rural areas can be significantly higher than for networks in other areas" and that the lack of suitable facilities "can deter last-mile broadband investments," and noting that existing middle mile facilities "may have insufficient capacity, causing the transmission speed on otherwise adequate last-mile broadband facilities to come to a crawl or stall before the data reach the Internet backbone").

How Much TV White Space Exists?

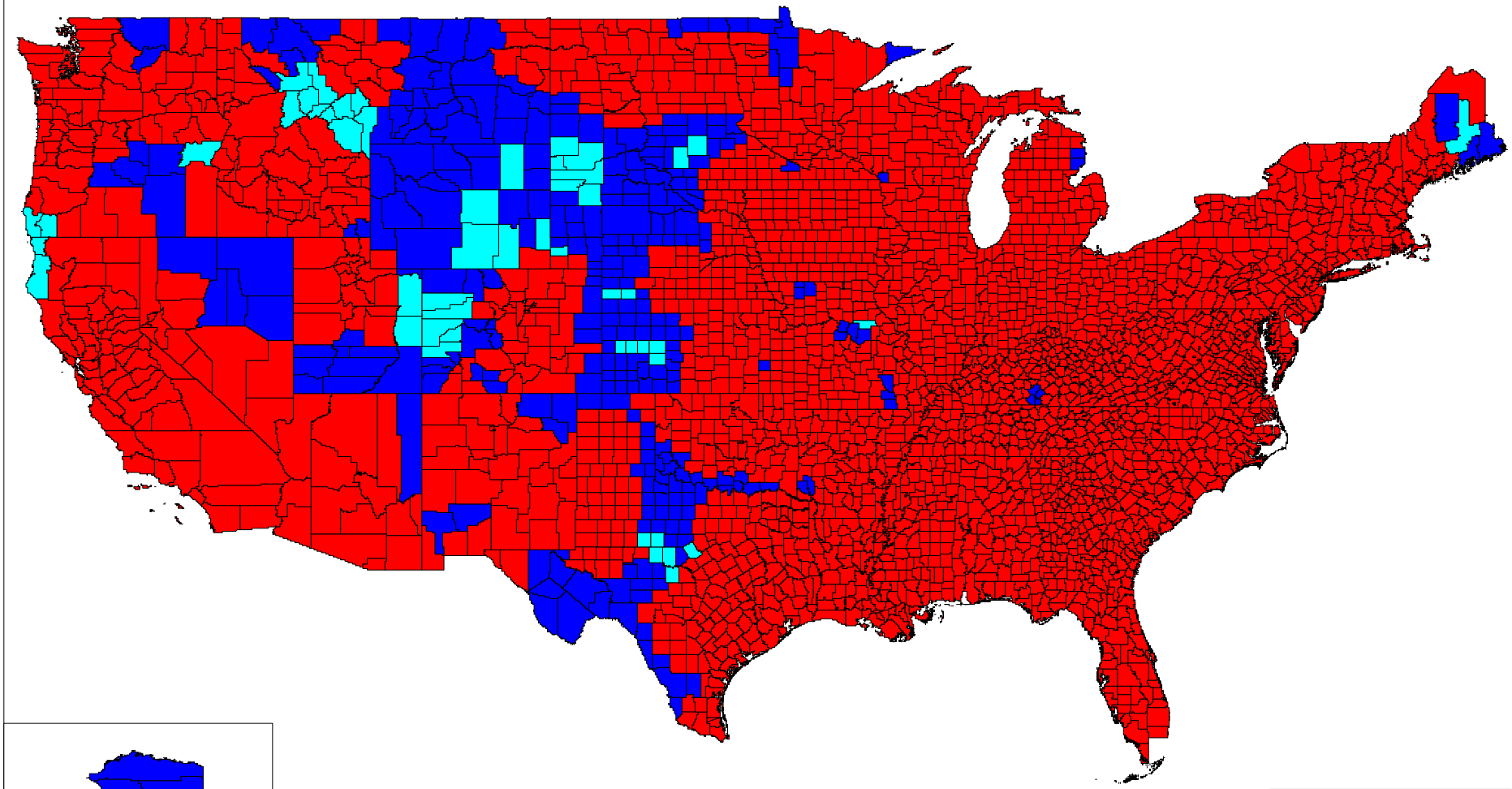
White Space Availability by County

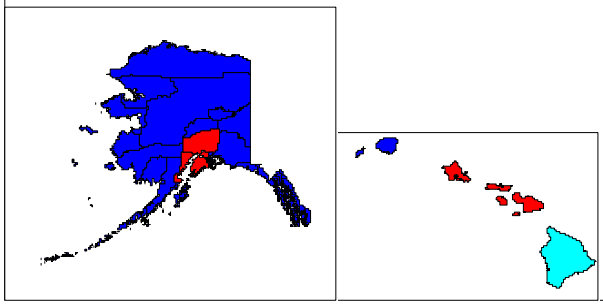


Source: *Ex Parte Letter*, October 1, 2009, filed in ET Dkt. 04-186 by Wiltshire & Grannis LLP, on behalf of Dell, Inc., Microsoft Corp., and Spectrum Bridge Inc.

White Space Analysis
Digital TV

Attachment to September 15, 2010 *Ex Parte* in TV White Spaces Proceeding



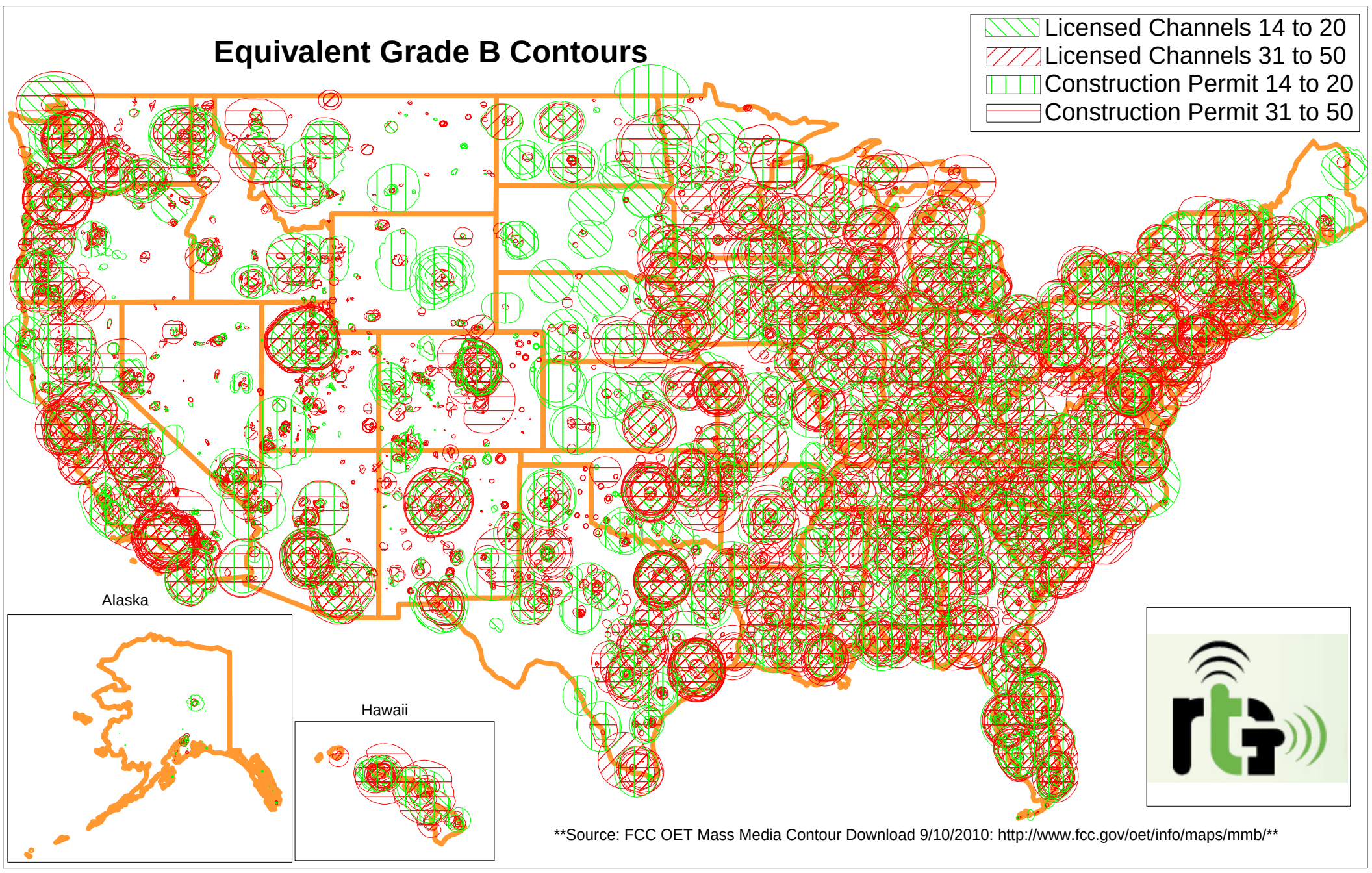


In this map, if any county had even one digital TV station operating in the range of TV Channels 31-51, that county is identified as having zero available TV White Spaces channels, representing a worst-case scenario.

White Space Analysis
Available Channels

- 0
- 1 to 15
- 15 to 21
- 21 to 27

Equivalent Grade B Contours



Source: FCC OET Mass Media Contour Download 9/10/2010: http://www.fcc.gov/oet/info/maps/mmb/

THERE IS AMPLE PRECEDENT FOR THE FCC TO CONSIDER WAIVER REQUESTS FOR USE OF VACANT TV CHANNELS ON A CASE-BY-CASE BASIS

- *The FCC commonly uses the case-by-case waiver request process during times of major spectrum band reconfigurations*.

  - The Media Bureau announced in 2004 that it would consider, on a case-by-case basis, requests for waivers of the freeze it imposed on TV broadcast station applications in advance of the digital transition. *See Freeze on the Filing of Certain TV and DTV Requests for Allotment or Service Area Changes*, Public Notice, DA 04-2446 (rel. Aug. 3, 2004).

  - In 2004, the Commission established a plan to transition EBS and BRS licensees from their interleaved channel locations to their new channel locations in the new band plan. However, the FCC permitted certain MVPDs to seek waivers to "opt out" of the transition, thus permitting them to continue high-power, high-site operations throughout the entire 2500-2690 MHz band. In 2006, the FCC released an order affirming its decision to consider these waivers on a case-by-case basis. *See Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands,* Third Memorandum Opinion and Order and Second Report and Order*,* 21 FCC Rcd 5606 ¶ 72 (2006).

  - In 2003, the Media Bureau implemented a freeze on the filing of maximization applications by broadcast TV stations on Channels 60-69 to facilitate the clearing and auction of the commercial portions of the spectrum. However, the Bureau announced that it would consider, on a case-by-case basis, requests for waiver of this freeze where the modification application would achieve one of a number of policy goals, including the more efficient use of spectrum. *See Freeze on the Filing of TV and DTV Maximization Applications in Channels 60-69*, Public Notice, DA 03-46 (rel. Jan 24, 2003) ("*Channels 60-69 Freeze Notice*").

  - In the reconfiguration of the 800 and 900 MHz bands, the FCC placed a freeze on applications for new licenses in the 900 MHz band out of concern that the presence of too many new licensees in the band could compromise Nextel's ability to obtain the "green space" needed to locate some of its operations during the reconfiguration of the 800 MHz band. However, the FCC stated that "we will consider requests for waiver of the application freeze for new authorizations (*e.g.*, a licensee with a legitimate business need to expand coverage or add channels). We believe this strikes an appropriate balance of our need to keep the spectrum as unencumbered as possible, with the needs of current licensees with business plans that need to be effectuated." *Amendment of Part 90 of the Commission's Rules to Provide For Flexible Use of the 896-901 MHz and 935-940 MHz Bands*, Notice of Proposed Rulemaking and Memorandum Opinion and Order, 20 FCC Rcd 3814 ¶ 67 (2005).

- *The FCC commonly uses the case-by-case waiver request process to make spectrum available for new uses where the spectrum is lying fallow or where there is a lack of alternative spectrum for a compelling need.*

    - In the Part 80 Maritime Services (VPC and AMTS), the FCC recognized that much of the spectrum was lying fallow – particularly in areas not near a navigable waterway – and provided flexibility for licensees to offer service to units on land, although these operations remained subject to the Part 80 operational rules, thereby effectively limiting the types of land-based services that could be offered. However, the FCC indicated that parties could request waivers allowing them to provide land-based services pursuant to the rules generally applicable to land mobile radio services (*i.e*., Part 90). The FCC stated that reliance on the waiver process "ensures that new proposals for the use of maritime spectrum outside of a Part 80 framework receive close scrutiny to prevent any unintended erosion of the maritime allocation." *See Maritel, Inc. and Mobex Network Services, LLC,* Report and Order, 22 FCC Rcd 8971 ¶ 21 (2007).

    - With regard to the Broadcast Satellite Service, the FCC recognized the lack of 17/24 GHz ground facilities to support satellite launch, transfer and testing operations. It noted that "commenters suggest that the Commission should take a flexible approach toward TT&C requirements, particularly recognizing the absence of the ground network necessary for support during critical launch and early operation phases." Accordingly, the FCC decided to consider "the merits and needs for 17/24 GHz BSS systems to use alternate TT&C frequencies on a case-by-case waiver basis." *Policies and Service Rules for the Broadcasting-Satellite Service*, Report and Order, 22 FCC Rcd 8842 ¶ 106 (2007).

    - *See also Channels 60-69 Freeze Notice, supra* (considering waiver requests that would result in more efficient spectrum use).

- *The FCC commonly uses the case-by-case waiver request process during the pendency of rulemaking proceedings, especially where the waiver grant is consistent with the action the FCC has proposed to take.*

    - When the FCC proposed to increase the power limit applicable to certain paging stations, it indicated that "[w]e will entertain waiver requests to increase power during the pendency of this rule making proceeding, as long as the carrier can satisfy the requirements of Section 22.19 of the Rules and demonstrate the lack of interference to co-channel stations." *Amendment of Part 22 of the Commission's Rules Pertaining to Power Limits for Paging Stations*, Notice of Proposed Rulemaking and Order Granting Petition for Waiver, 8 FCC Rcd 2796 ¶ 17 (1993).

    - "As we have stated previously, in light of the Commission's ongoing consideration of possible revisions to the one-to-a-market prohibition, including the impact of the revised ownership limits, we will consider one-to-a-market waiver requests under the case-by-case standard where the proposed transaction involves the common ownership of a television station and more than one same-service radio station." *Application of Pacific FM, Inc.*, Memorandum Opinion and Order, 13 FCC Rcd 9497 ¶ 5 (1998) (citing *Moosey Communications, Inc.,* 8 FCC Rcd 5247 (1993) (consideration of one-to-a-market waivers under the case-by-case standard is still appropriate where new radio-TV combinations are created, pending the possible revision of the one-to-a-market rule in the outstanding TV ownership proceeding)).

Major Upcoming Wireless Broadband Build-out Deadlines and Licensee Commitments

SERVICE OR LICENSEE	BUILD-OUT DEADLINE(S)	APPLICABLE GEOGRAPHIC AREA
BRS/EBS	**May 1, 2011** This build-out deadline applies to all BRS/EBS licenses initially granted prior to November 6, 2009	The service is licensed as a combination of BTAs and 35-mile radius geographic service areas
LightSquared	**December 31, 2012** LightSquared has committed to providing 4G terrestrial network coverage to at least 100 million people by this date; it has also committed to providing coverage to at least 145 million people by December 31, 2013	
Upper 700 MHz C Block	**June 13, 2013** This interim build-out deadline applies to all licensees except those providing broadcast services	This block is licensed on a REAG basis but is subject to build-out requirements that must be met on an EA basis
Lower 700 MHz A and E Blocks	**June 13, 2013** This interim build-out deadline applies to all licensees except those providing broadcast services	These blocks are licensed on an EA basis
Lower 700 MHz B Block	**June 13, 2013** This interim build-out deadline applies to all licensees except those providing broadcast services	This block is licensed on a CMA basis
2.3 GHz WCS	**March 4, 2014** This interim build-out deadline applies to all 2.3 GHz WCS licenses initially granted prior to September 2, 2010	This band is licensed on an MEA and REAG basis

September 8, 2010

VIA ELECTRONIC DELIVERY

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Room TWA325
Washington, DC 20554

Re: Written *Ex Parte* Presentation
ET Docket Nos. 04-186, 02-380

Dear Ms. Dortch:

FiberTower Corporation ("FiberTower"), Sprint Nextel Corporation ("Sprint Nextel"), the Rural Telecommunications Group, Inc. ("RTG"), and the Wireless Communications Association International ("WCAI") (collectively, the "Coalition") strongly encourage the Commission to take immediate action to authorize limited fixed licensed use of a limited portion of the vacant TV Bands White Spaces ("White Spaces") channels in rural and tribal areas. Specifically, the Commission should allow limited licensing for fixed use on UHF TV Channels 21-35 and 39-51, as well as UHF TV Channels 14-20, for up to six vacant TV White Spaces channels second or greater adjacent to a TV broadcast station in rural counties. The Coalition has confirmed the availability of off-the-shelf, cost-effective equipment for all UHF TV Channels, including Channels 14-20 (470-512 MHz), and remains flexible regarding limiting fixed use to a limited percentage of any vacant available channels in rural areas.

The Coalition's very narrow proposal, utilizing off-the-shelf equipment for the Broadcast Auxiliary Service ("BAS"), is the only practical, cost-effective long-distance wireless backhaul solution that has been identified for rural and tribal areas. Adopting the Coalition's proposal will help address the "notable lack of competition for special access in rural areas" recognized by the U.S. Government Accountability Office in a July 2010 Report to Congress,[1] and the "prohibitively

[1] *Enhanced Data Collection Could Help FCC Better Monitor Competition in the Wireless Industry*, Government Accountability Office Report to Congressional Requesters, 32 (July 2010).

expensive" backhaul transport costs highlighted by the Commission in the 2009 Rural Broadband Report.[2]

Moreover, the Commission recognized in the National Broadband Plan ("Plan") that wireless backhaul is "critical to the deployment of wireless broadband and other wireless services."[3] Backhaul infrastructure must be built before consumers can benefit from innovative new unlicensed and licensed broadband networks and devices that may be offered in the TV White Spaces. In addition, the White Spaces channels are widely available in rural and tribal areas, with approximately 15-to-45 or more vacant White Spaces channels – up to 270 MHz – laying fallow in a given rural area. Consistent with the recommendations in the Plan, therefore, the Commission should "enhance the flexibility and speed with which companies can obtain access to spectrum for use as wireless backhaul" and make the White Spaces spectrum available for wireless backhaul "where it otherwise may go unused."[4]

UHF TV Channels 14-20 would be viable for limited fixed licensed use in rural areas. The Coalition's proposal provides significant flexibility regarding the fixed licensed use of particular TV White Spaces channels, especially on vacant UHF TV Channels 14-20 (470-512 MHz) in rural and tribal areas. The Coalition has confirmed that limited use of these vacant channels will enable the utilization of off-the-shelf equipment that is available from multiple vendors. For example, Kathrein, Inc. offers a PR-TV series high-gain, low-weight paraflector antenna designed for use in the 470-862 MHz range, encompassing UHF TV Channels 14-20. Axcera also offers a low-power QAM transmitter for the 470-860 MHz range. Both products can accommodate 6 MHz channel bandwidths. As the Coalition has stated many times, because off-the-shelf equipment is already in use for hundreds of existing BAS fixed point-to-point links, dramatically lower cost backhaul solutions can be deployed immediately in rural and tribal areas, subject to site availability, local zoning and other typical developmental concerns. Indeed, a 75-mile or longer wireless backhaul link could be constructed at a cost of $100,000-200,000 using two small lightweight antennas that operate on vacant UHF TV Channels 14-20, whereas covering the same distance using 3.65 GHz, 6 GHz, or higher-frequency spectrum would require up to four relay towers and a total of ten six-foot diameter dish antennas, costing $3 million or more. In addition, the proposed limited new fixed licensed operations would protect public safety and land mobile incumbents in TV UHF Channels 14-20 against harmful interference by not operating in the presence of those incumbents.

The Coalition's proposal is consistent with any future TV Bands repacking effort. Another key benefit of the Coalition's narrow proposal is that it is largely "repacking-proof" and consistent with any TV Bands channel modification or repacking efforts because it can accommodate essentially any subsequent repacking of the broadcast TV spectrum. Although the TV Bands are congested in most urban and suburban markets (especially compared to the relatively clear bands that the Commission auctions for exclusive use), they are far less utilized in rural areas. As mentioned above, dozens of vacant channels currently exist in rural and tribal areas. For example, the rural Midas, Nevada area has approximately 47 vacant White Spaces channels, far more than

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[2] *Bringing Broadband to Rural America: Report on a Rural Broadband Strategy*, Federal Communications Commission, at ¶ 114 (May 22, 2009).

[3] *See* "Connecting America: The National Broadband Plan," Federal Communications Commission, 93 (March 2010) ("Plan").

[4] *Id.*

necessary to address concerns over a future repacking in that area even with limited fixed licensed use of a small portion of the vacant channels.[5] Likewise, there are far fewer broadcast stations, low power TV stations, and TV translators that will need to be "repacked" in rural areas. Therefore, authorizing limited new fixed licensed use of a portion of these vacant channels – no matter how they are organized – would not preclude or require waiting for any broadcast repacking or channel modification proposals. Moreover, providing for limited fixed licensed point-to-point use greatly improves spectrum efficiency by increasing the chance that there will be some utilization of the White Spaces in rural and tribal areas, especially given that off-the-shelf equipment is already available today and the need for cost-effective backhaul is particularly urgent to provide broadband service to these areas.

By adopting the Coalition's proposal, the Commission has a unique and practical opportunity to advance its broadband and competition policy goals and encourage the deployment of wireless broadband services in "prime" spectrum, especially in rural and tribal areas.

Pursuant to Section 1.1206 of the Commission's rules, this letter is being filed via ECFS with the Commission's Secretary.

Sincerely,

/s/ Joseph M. Sandri, Jr.

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[5] *See, e.g.*, http://spectrumbridge.com/products-services/tv-whitespaces/single-location-search.aspx#Search.

PROPOSAL FOR LIMITED FIXED LICENSED POINT-TO-POINT USE OF THE TV WHITE SPACES FOR BACKHAUL TO RURAL AREAS

Summary: Approximately 15 to 45 or more TV white spaces channels lay fallow in rural areas. The FCC should authorize limited fixed licensed point-to-point use of the TV "White Spaces" on UHF TV Channels 21-35 and 39-51 or UHF TV Channels 14-20 for:

(1) Up to six vacant TV White Spaces channels second or greater adjacent to a TV broadcast station in rural counties; and

(2) Any vacant TV White Spaces channels third or greater adjacent to a TV broadcast station in all counties.

Limited use of vacant UHF TV Channels 14-20 (470-512 MHz) in rural areas: (1) will enable utilization of cost-effective off-the-shelf equipment already being deployed for the Broadcast Auxiliary Service, (2) will facilitate any potential repacking of the broadcast spectrum bands, and (3) will avoid causing interference to any public safety or land mobile incumbents in major cities or more urban areas.

Expedited Action Needed: To stimulate broadband access in rural areas, the FCC should adopt this narrow proposal on an expedited basis. This will further the National Broadband Plan goals by assisting carriers seeking to deploy far more cost-effective middle mile infrastructure in unserved and underserved areas.

Benefits: Authorizing up to six vacant TV channels would bring many public interest benefits:

- ***Increased Rural Broadband Deployment.*** Backhaul infrastructure must be built before consumers can benefit from innovative new unlicensed and licensed broadband networks and devices; this narrow proposal provides urgently needed, cost-effective "middle mile" backhaul.
- ***Dramatically Lower Backhaul Costs.*** The favorable propagation characteristics of the TV White Spaces, as well as the readily available small lightweight antennas for the band, would reduce the middle mile backhaul and transport costs by as much as 80-90% in rural areas.[1]
- ***Readily Available Fixed Link Equipment and Licensing Scheme.*** More than 300 fixed links are already licensed and installed in the TV Bands under the existing Part 74 Broadcast Auxiliary Service ("BAS") rules; the longstanding use of these frequencies for BAS point-to-point links (some of which are 50-80 miles long or more) ensures the immediate, off-the-shelf availability of point-to-point equipment for backhaul use in TV Channels 21-35 and 39-51. The FCC could amend Part 101 or Part 74 to license non-broadcast fixed link users in the band.
- ***Numerous Vacant TV Channels Available in Rural Areas.*** TV White Spaces channels are widely available in rural unserved and underserved areas, with approximately 15 to 45 or more channels lying fallow in these areas. This narrow proposal would only authorize fixed licensed use on up to six of these channels, permitting many other uses. By contrast, very few additional links are available even in rural areas in the heavily used 6 GHz band.
- ***Protection of Incumbents and New Unlicensed Users.*** The limited number of new licensed point-to-point systems could operate without causing harmful interference to the many incumbent users in the TV Bands, and licensed use allows far greater certainty and accountability to those incumbents. Numerous vacant channels exist in the band for unlicensed users, and unlicensed devices could still operate on channels designated for fixed licensed use, subject to the normal protections afforded to licensed users when operational.
- ***Broadcast Repacking Already Contemplated.*** This narrow proposal only provides for use on a limited number of vacant channels, no matter how they are organized, and would not preclude or require waiting for any broadcast repacking or channel modification proposals.

[1] For example, a 75-mile or longer wireless backhaul link could be constructed at a cost of $100,000-200,000 using two small lightweight antennas; covering the same distance using 3.65 GHz, 6 GHz, or higher-frequency spectrum would require up to four relay towers and a total of ten six-foot diameter dish antennas, costing $3 million or more.